APECS
Association of Polar Early Career Scientists

Shaping the Future of Polar Research

Beyond conferences and journal publications: Publishing and presenting research online through a Virtual Poster Session

Angelika Renner[1,2], Jenny Baeseman[1], the APECS VPS Working Group

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The 6th Munin Conference - Enhancing publications, Tromsø, 22-23 Nov 2011

The Research Council of Norway
Universitetet i Tromsø
Norsk Polarinstitutt
UC University of Canterbury
norden

Some background first:

- who and what is APECS?

international and interdisciplinary organisation for people with interest in polar regions and the wider cryosphere

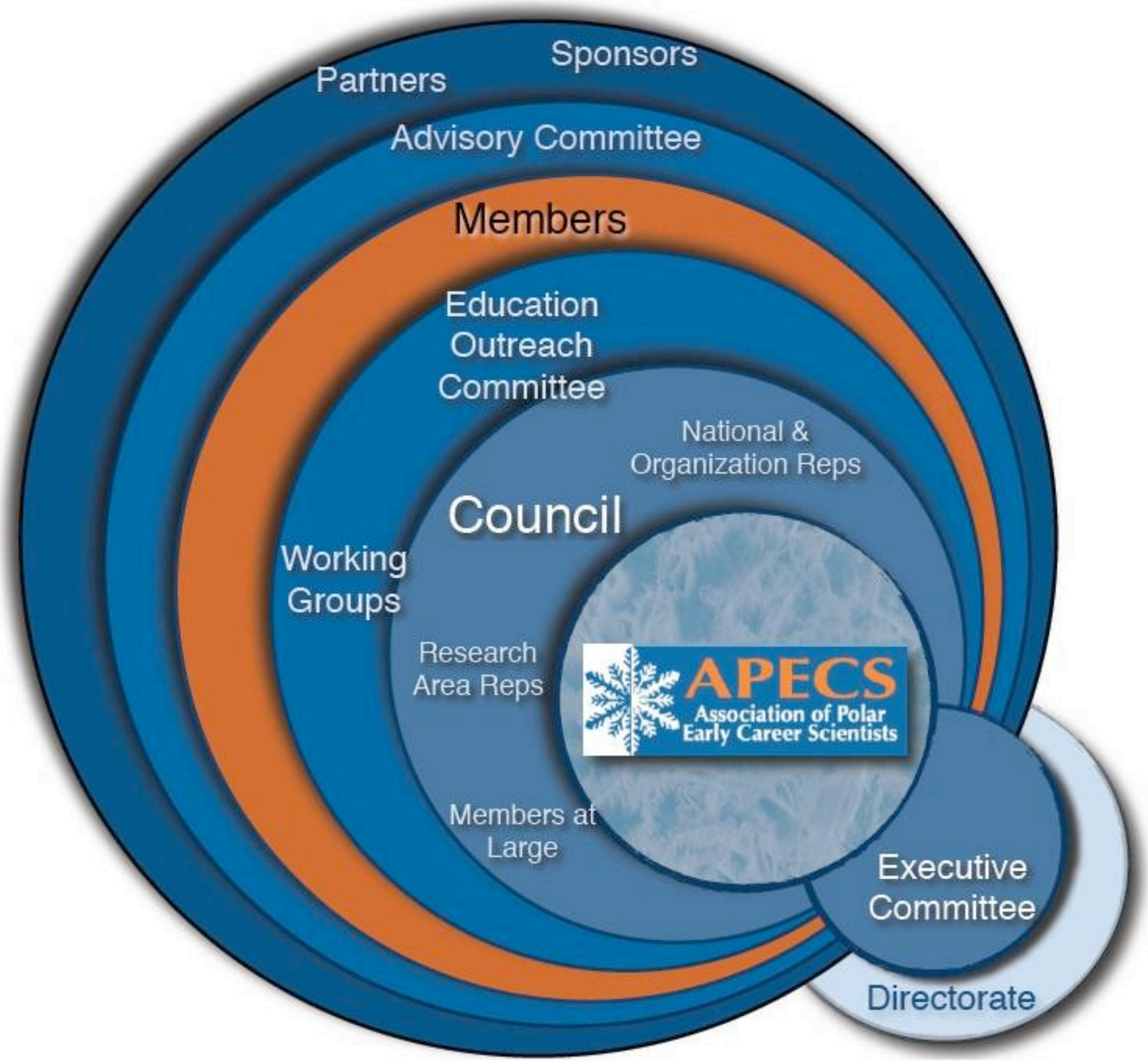
- what are the aims of APECS?

stimulate collaborations and develop future leaders in polar research, education and outreach

- how?

- facilitate networking
- provide opportunities for career development
- promote education and outreach

Wednesday, 23 November 2011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Early Career Scientists
Members at
Large
Executive
Committee
Directorate

Some more facts about APECS:

- directorate based at UiT
- over 3000 members in over 75 countries and growing
- just in the 2010/2011 term: 30 mentor panels and workshops in 15 countries
- national committees/groups in 9 countries, 1 starting soon, 10 more in progress
- partnerships with various scientific organisations
- ONE paid member of staff!

Association of Polar Early Career Scientists (APECS)

The Virtual Poster Session (VPS) - taking posters beyond the traditional conference setting

=> web-based tool

=> easy, open access

=> free platform to share results, exchange ideas, get feedback

=> develop better communication skills

Part I: Online poster database

http://apecs.is/virtual-poster-session

Virtual Poster Session

Help us improve the Virtual Poster Session!

Share posters you have presented at other conferences, carry on discussions, get feedback from senior researchers in the field and also find new collaborators.

Sponsored by: norden Nordic Council of Ministers Nordic Council

This effort focuses on bringing the concept of the poster presentation beyond the four walls of the conference hall and creates an online database of polar research poster publications. This project allows members with similar goals and interests to exchange information and assures a platform for the exchange of Arctic, Antarctic and Cryospheric research, policy, and education activities that are *Shaping the Future of Polar Research*. APECS is leading an effort towards e-conferences among polar researchers where participants can present their research findings to an international audience through web-based settings using the APECS website.

You can view some of our previous online sessions as well as watch a short tutorial video on how to join a live session or what its like to be a presenter.

Read more...

Browse Poster Session by Theme:

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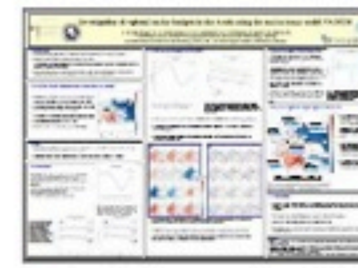
Terms of Submission

Gain Important Skills by Joining the Virtual Poster Session Working Group

Investigation of regional sea ice budgets in the Arctic using the sea ice/ocean model NAOSIM



Authors:
S. Kohnemann *, G. Heinemann *, D. Schröder **, S. Willmes * and C. Koeberle ***

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*** Alfred Wegener Institut, Bremerhaven, Germany

Originally presented at:
EGU General Assembly 2011

Abstract/Summary:
Remote sensing data show a continuous decrease of sea ice in the past 30 years. Climate models predict a further decreasing for the future. Therefore, a closer analysis of the production processes, the trend development and the regional variability is necessary. The Laptev Sea plays an important role for the Arctic sea ice budget due to a high polynya activity at the Siberian coast. The coupled ocean-sea ice model NAOSIM (North Atlantic/Arctic Ocean- Sea Ice Model) is used for the study of thermodynamic and dynamic ice production processes for the whole Arctic for the period 1990-2008. The simulation is driven by daily NCEP/NCAR data, and the horizontal resolution of the model is about 9km. Sea ice concentration from satellite data is used for the verification of model results. The model is able to reproduce the mean annual cycle and the negative trend realistically. A detailed analysis of the thermodynamic sea ice production/melt and the dynamic redistribution for different regions of the Arctic shows that the mean sea ice production of the Laptev Sea area exceeds the sea ice melt rate by 740 km3/a. That sea ice volume is transported into the central Arctic. The net ice production in the Laptev Sea is as large as the net ice production in the central Arctic north of 80°N. The Laptev Sea is found to be the largest ice producer compared to other Arctic shelf areas. In addition, the interannual variability of sea ice production in the Laptev Sea is small compared to other regions. A negative trend of sea ice in the Laptev-Sea is not found. For the entire Arctic sea ice volume decrease amounts to the average of -450 km3/a from 1990 to 2008. Studies for years with extreme sea ice anomalies show no direct connections between the sea ice production of the Laptev Sea and the sea ice volume of the entire Arctic.

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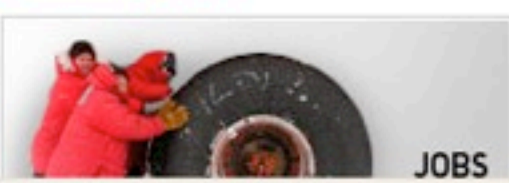

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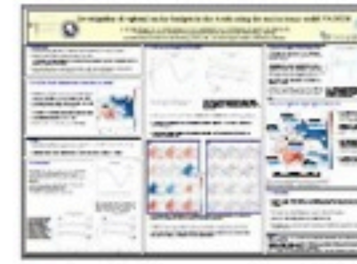

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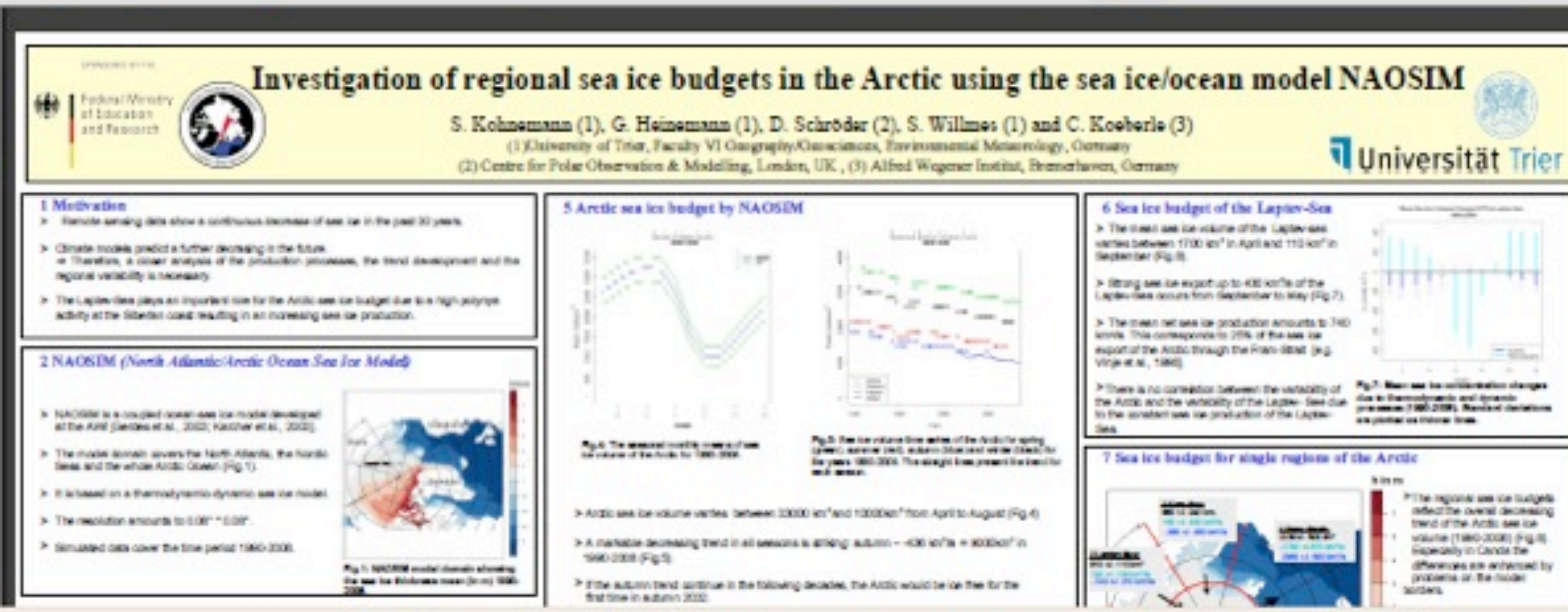

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Investigation of regional sea ice budgets in the Arctic using the sea ice/ocean model NAOSIM

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Universität Trier

1 Motivation

- Remote sensing data show a continuous decrease of sea ice in the past 30 years.
- Climate models predict a further decrasing in the future.
→ Therefore, a closer analysis of the production processes, the trend development and the regional variability is necessary.
- The Laptev-Sea plays an important role for the Arctic sea ice budget due to a high polynya activity at the Siberian coast resulting in an increasing sea ice production.

2 NAOSIM (*North Atlantic/Arctic Ocean Sea Ice Model*)

- NAOSIM is a coupled ocean-sea ice model developed at the AWI [Gerdes et al., 2003; Karcher et al., 2003].
- The model domain covers the North Atlantic, the Nordic Seas and the whole Arctic Ocean (Fig.1).
- It is based on a thermodynamic-dynamic sea ice model.
- The resolution amounts to 0.08° * 0.08°.
- Simulated data cover the time period 1990-2008.

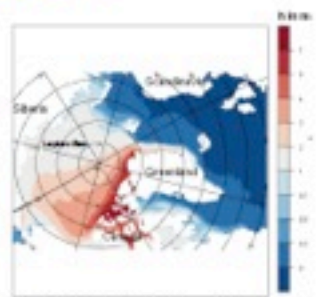


Fig.1: NAOSIM model domain showing the sea ice thickness mean (in m) 1990-2008

3 Data

- Model data: monthly means of sea ice concentration, sea ice thickness and sea ice changes due to thermodynamic and dynamic processes.
- Verification data: SSM/I monthly means of the sea ice cover [Fetterer et al. 2009].

4 Verification

- NAOSIM data show good agreements with SSM/I data: good reproduction of the mean annual cycle,the time series of the seasons and the trends (Fig.2,3).
- There is a model underestimation of the sea ice area at the beginning of the year.
- NAOSIM is applicable for further work.

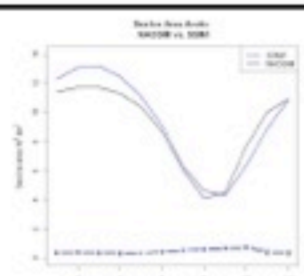


Fig.2: Mean annual cycle of Arctic sea ice area (1990-2008) for NAOSIM (black) and SSM/I data (blue). Standard deviations are plotted as dashed lines in the bottom.

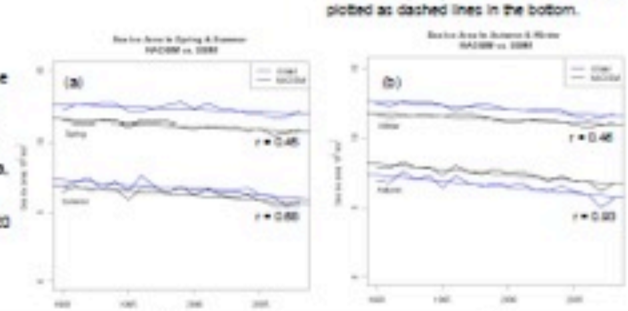


Fig.3: Time series for the sea ice area from 1990-2008, individually for spring and summer (a), winter and autumn (b). Blue lines are SSM/I data, black lines represent NAOSIM data. Straight lines indicate the trend.

5 Arctic sea ice budget by NAOSIM

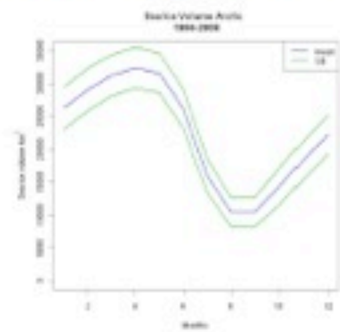


Fig.4: The seasonal monthly means of sea ice volume of the Arctic for 1990-2008.

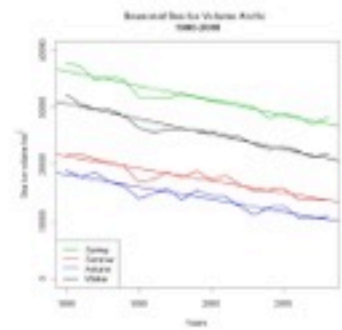


Fig.5: Sea ice volume time series of the Arctic for spring (green), summer (red), autumn (blue) and winter (black) for the years 1990-2008. The straight lines present the trend for each season.

- Arctic sea ice volume varies between 33000 km³ and 10000km³ from April to August (Fig.4)
- A markable decreasing trend in all seasons is striking: autumn ~ -436 km³/a ≙ 9000km³ in 1990-2008 (Fig.5).
- If the autumn trend continue in the following decades, the Arctic would be ice free for the first time in autumn 2032.

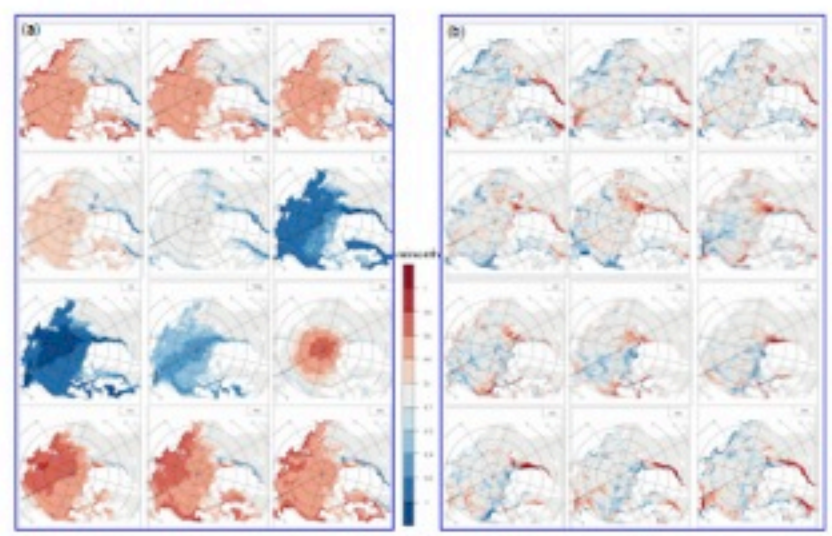


Fig.6: Monthly means of 1990-2008 for the ice thickness changes due to thermodynamic (a) and dynamic (b) processes in the Arctic from January to December created with NAOSIM-data.

- 23000 km³ sea ice grow within 8 months and melt within 4 months in the Arctic (Fig.6).
- The Laptev-Sea is a region with dominant mean sea ice production, the Fram-Strait with strong sea ice melting. → Result is a sea ice redistribution.

6 Sea ice budget of the Laptev-Sea

- The mean sea ice volume of the Laptev-sea varies between 1700 km³ in April and 110 km³ in September (Fig.8).
- Strong sea ice export up to 400 km³/a of the Laptev-Sea occurs from September to May (Fig.7).
- The mean net sea ice production amounts to 740 km³/a. This corresponds to 25% of the sea ice export of the Arctic through the Fram-Strait [e.g. Vinje et al., 1998].
- There is no correlation between the variability of the Arctic and the variability of the Laptev- Sea due to the constant sea ice production of the Laptev-Sea.

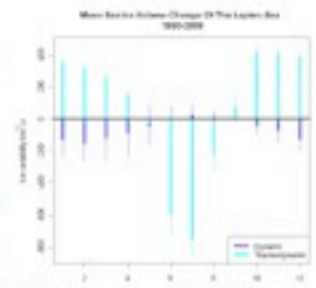
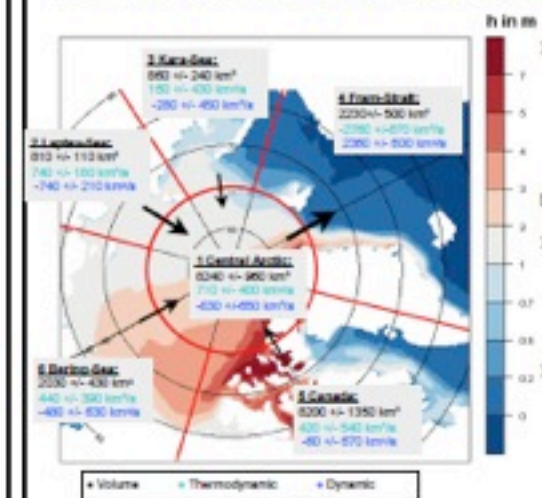


Fig.7: Mean sea ice concentration changes due to thermodynamic and dynamic processes (1990-2008). Standard deviations are plotted as thinner lines.

7 Sea ice budget for single regions of the Arctic



- The regional sea ice budgets reflect the overall decreasing trend of the Arctic sea ice volume (1990-2008) (Fig.8). Especially in Canda the differences are enhanced by problems on the model borders.
- The Laptev-Sea is the region with the strongest sea ice export and most constant sea ice volume from 1990-2008. No decreasing trend is found.
- In relation to the volume the trend of the Fram-Strait and Kara-Sea is the strongest.

Fig.8: Mean sea ice budget (volume and thickness changes due to dynamic and thermodynamic) for single regions of the Arctic (1990-2008). The standard deviation is based on annual values.

8 Conclusion

- NAOSIM shows good results in the verification with SSM/I data and thus it can be used for further analysis of sea ice volume and thermodynamic and dynamic sea ice thickness changes.
- The Laptev-Sea shows high sea ice export in other Arctic regions.
- There is no decreasing trend in the Laptev-Sea so far.
- The Laptev-Sea polynyas cannot be reproduced realistically because the model does not simulate fast-ice.

References

Fetterer, F., K. Knowles, W. Meier, and M. Savoie (2002, updated 2009): Sea Ice Index. Boulder, Colorado USA: National Snow and Ice Data Center. Digital media.
R. Gerdes, M.J. Karcher, F. Kauker, and U. Schauer (2003): Causes and development of repeated Arctic Ocean warming events. Geophysical research letters,30(19) 1980.
M.J. Karcher, R. Gerdes, F. Kauker, and C. Köberle (2003): Arctic warming: Evolution and spreading of the 1990s warm event in the Nordic seas and the Arctic Ocean. J. Geophys. Res, 108(C2) 3034.
Vinje, T., N. Nordlund, and Å Kvambekk (1998): Monitoring ice thickness in Fram Strait. J. Geophys. Res, 103 10437–10449.

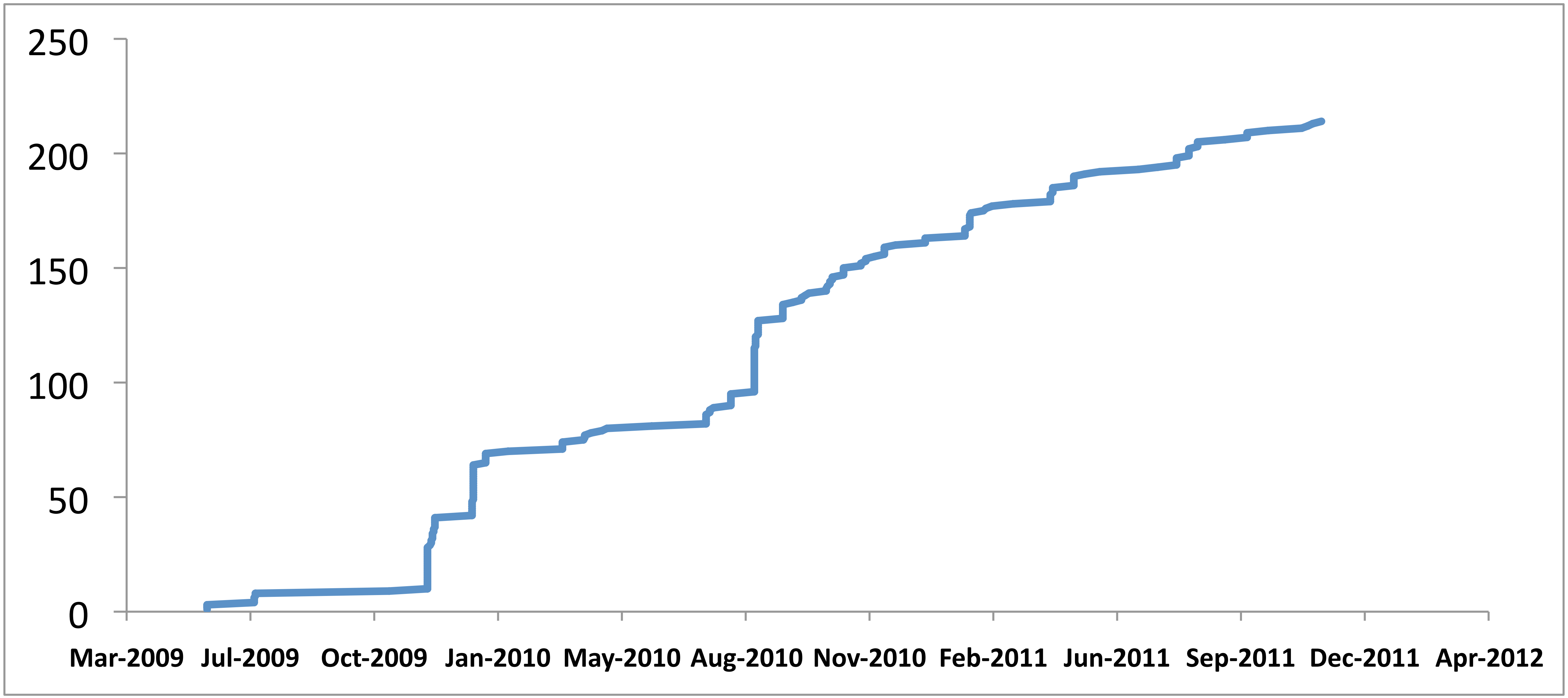
Part I: Online poster database

Part I: Online poster database

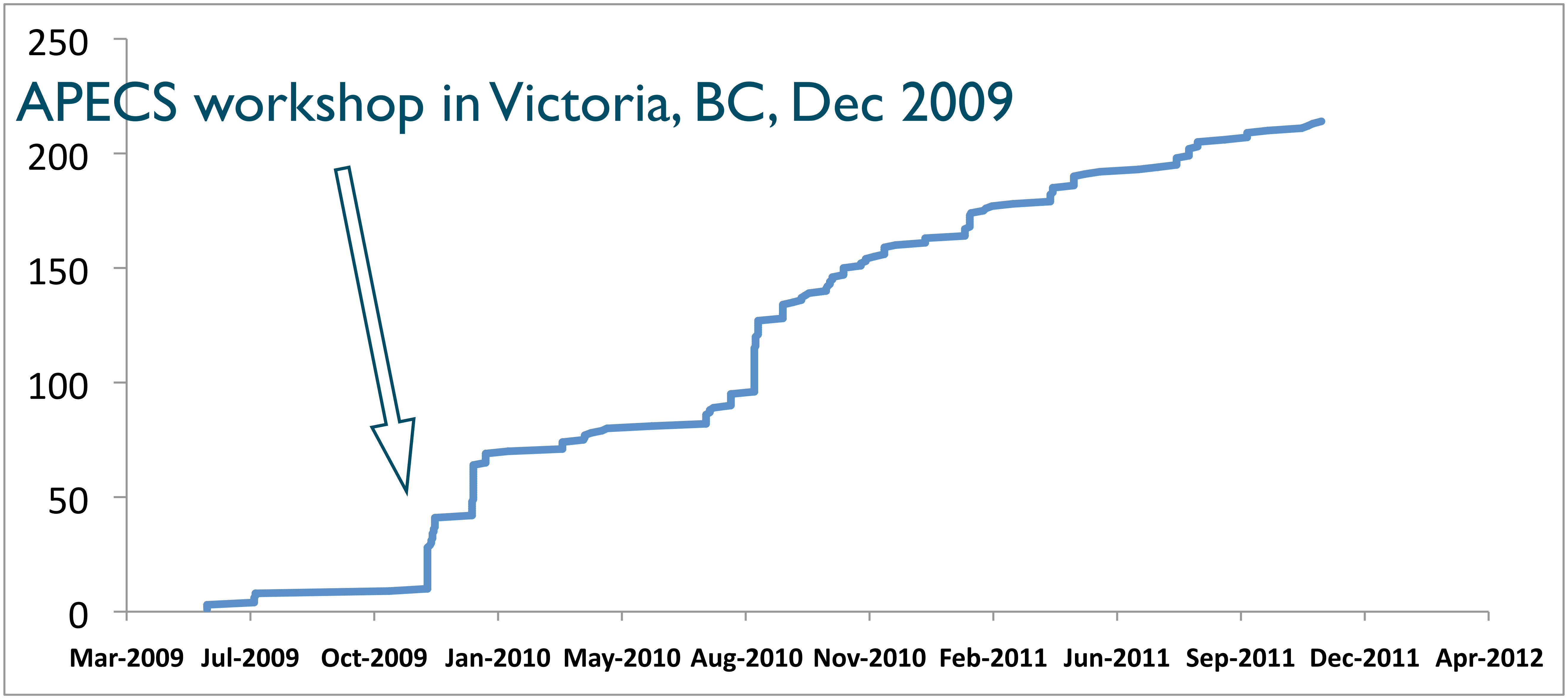
Some numbers:

- start in June 2009
- no. of poster as of 20/11/2011: 214
- no. of countries of origin, 1st authors: 31
- no. of countries of origin, all authors: 34

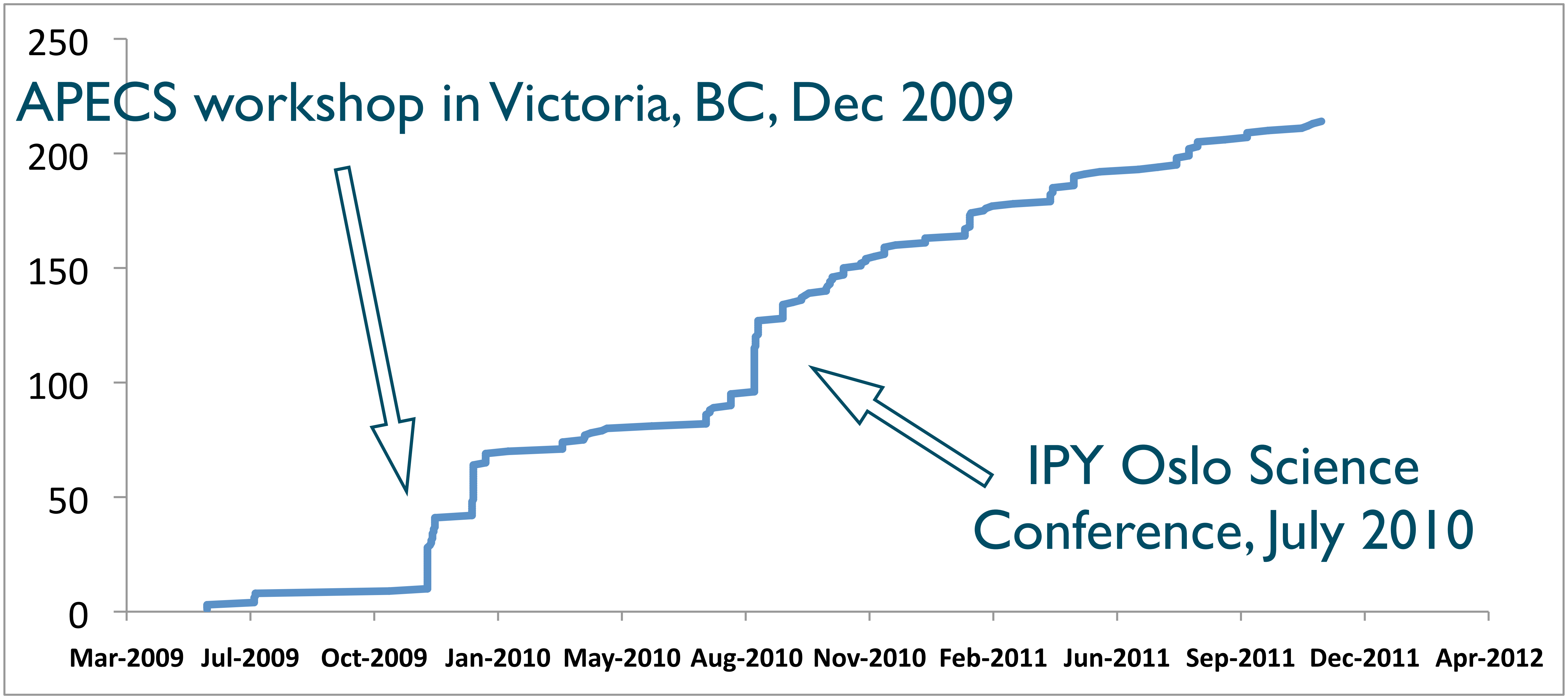
Number of posters



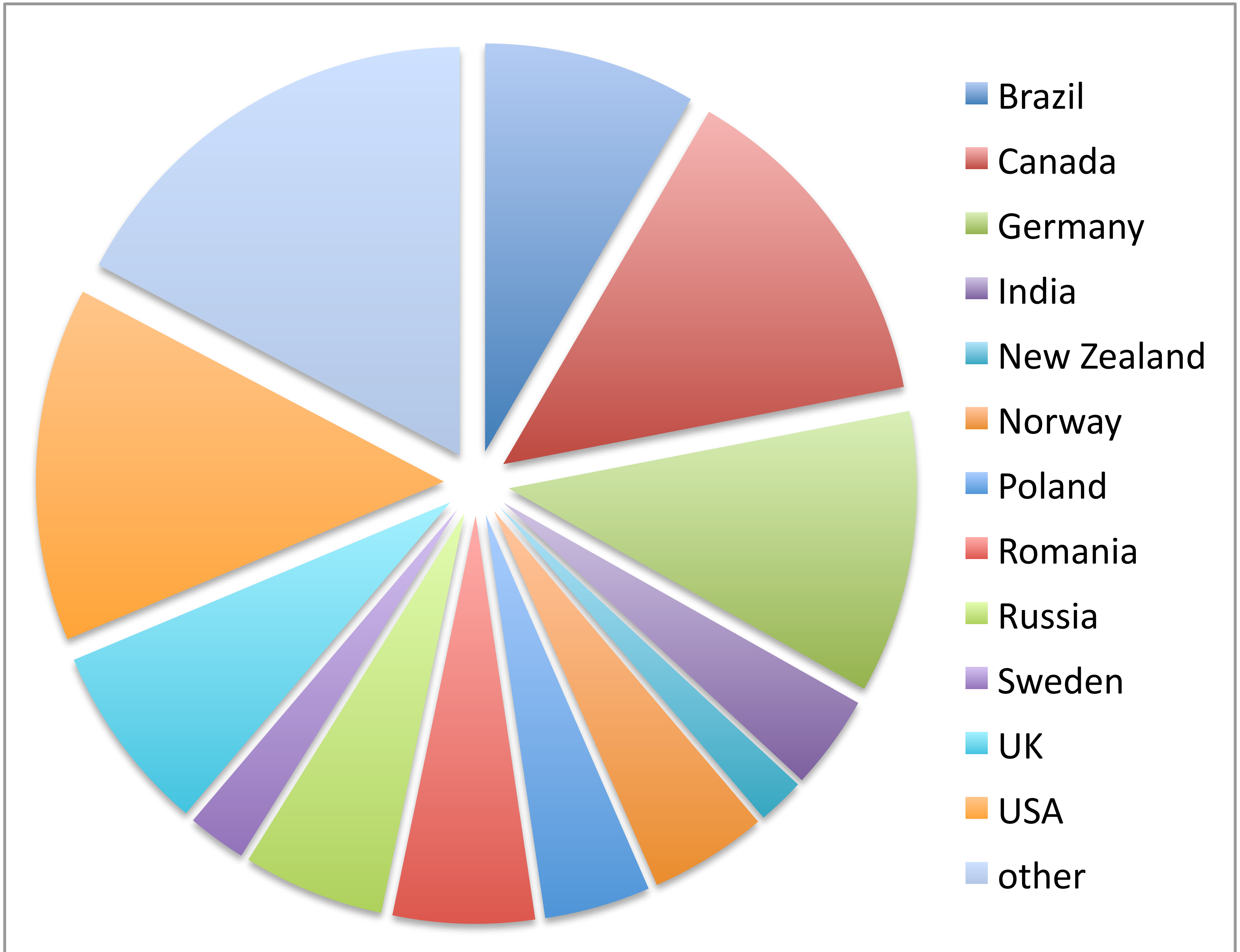
Number of posters



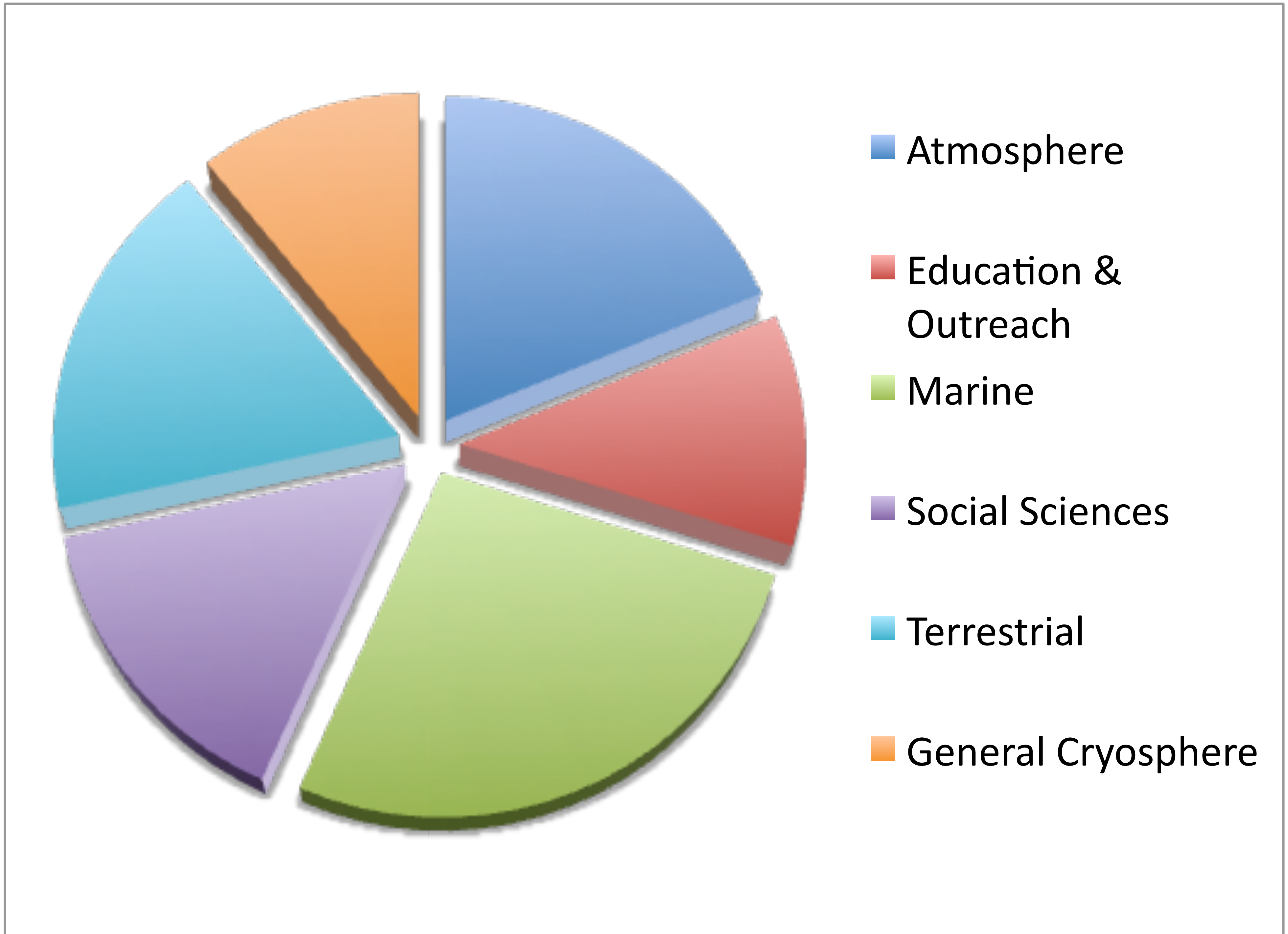
Number of posters



Contributions by country



Posters by discipline

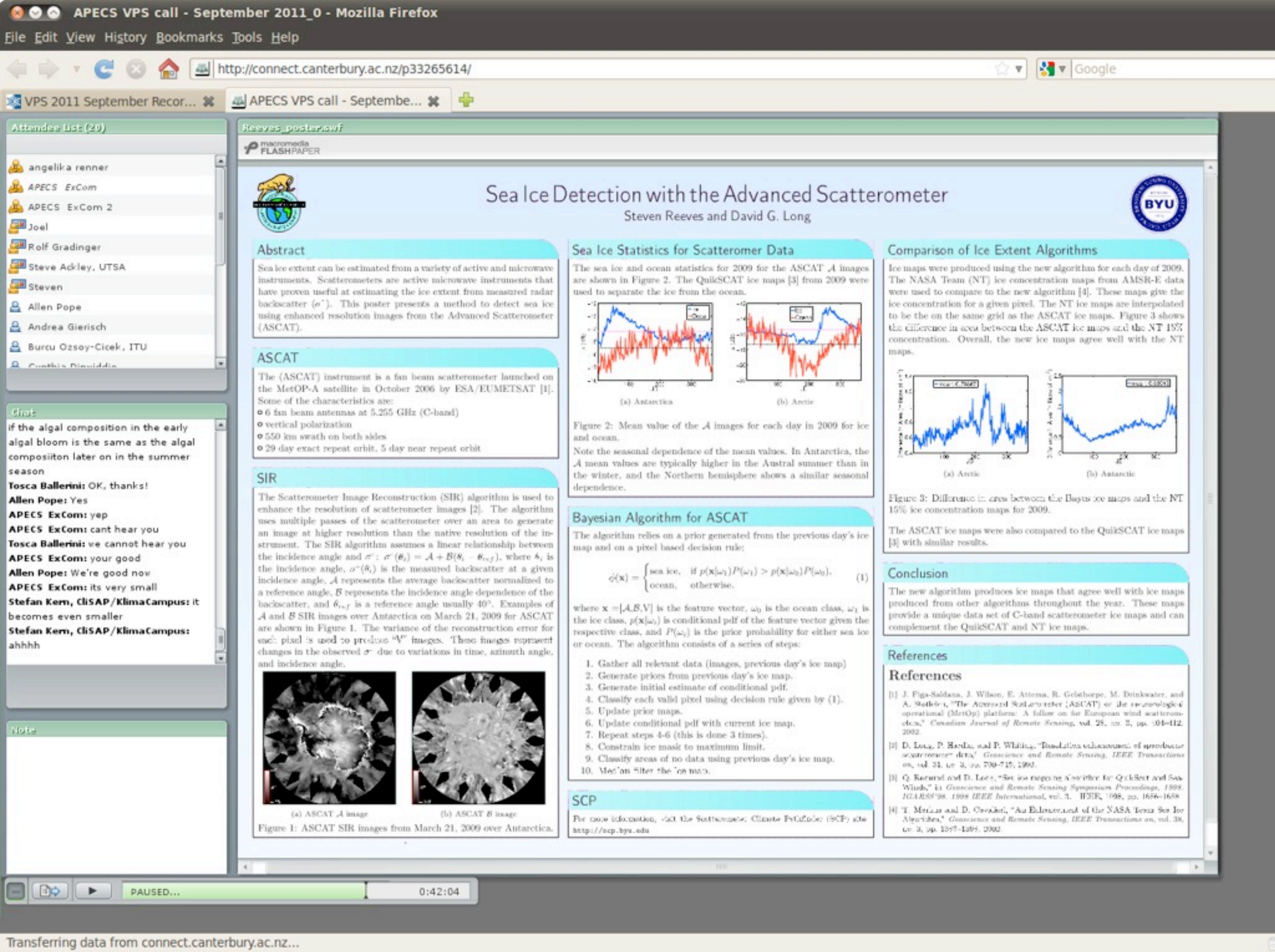


Part II: Online poster sessions

Part II: Online poster sessions

Part II: Online poster sessions

- Live sessions using an online conferencing system, recording available afterwards
- usually 3-4 presenters
- topic by discipline, country, research region, ...
- all that's needed to participate: computer with internet connection!
- so far: 16 calls with >250 participants



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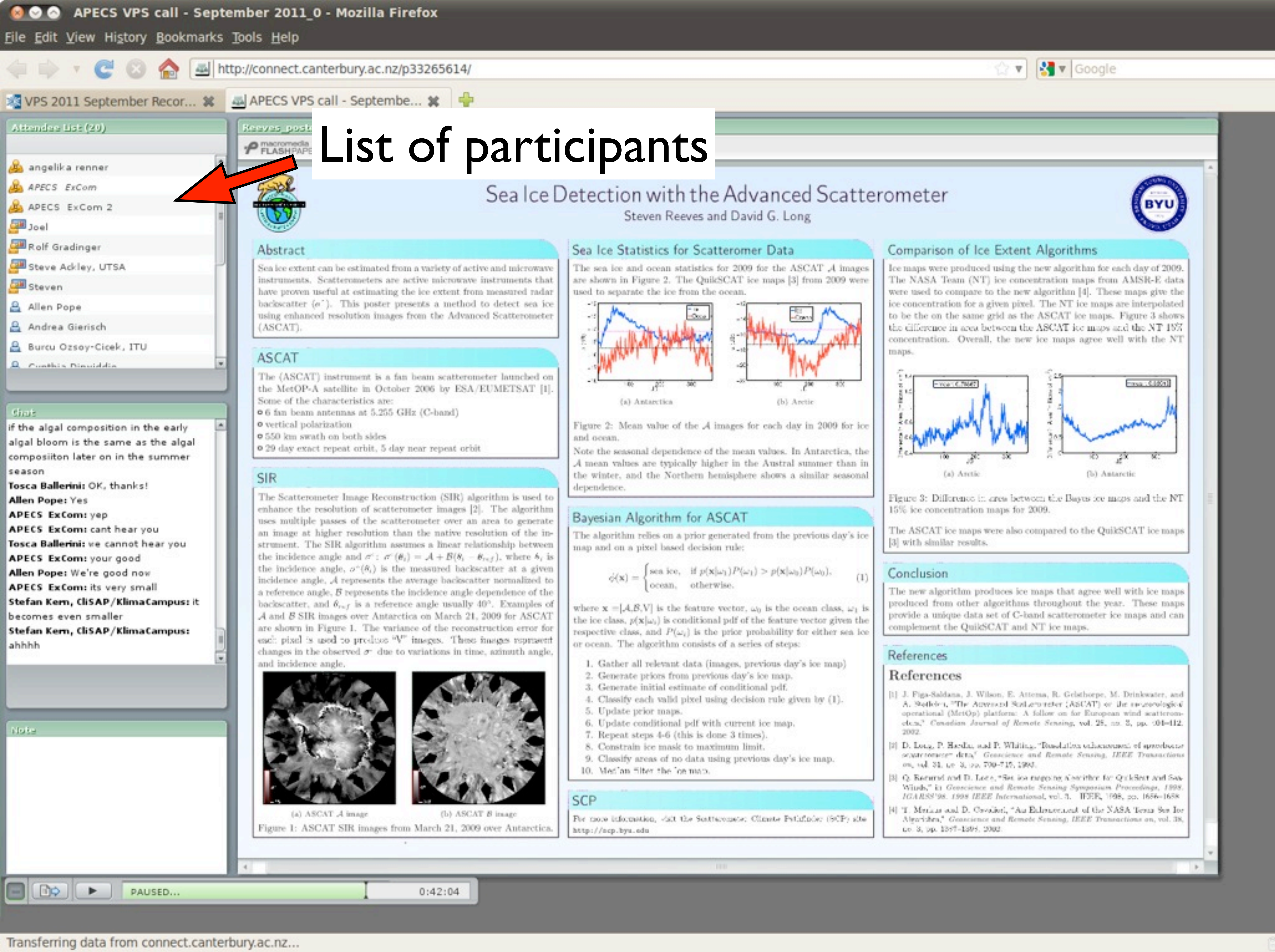

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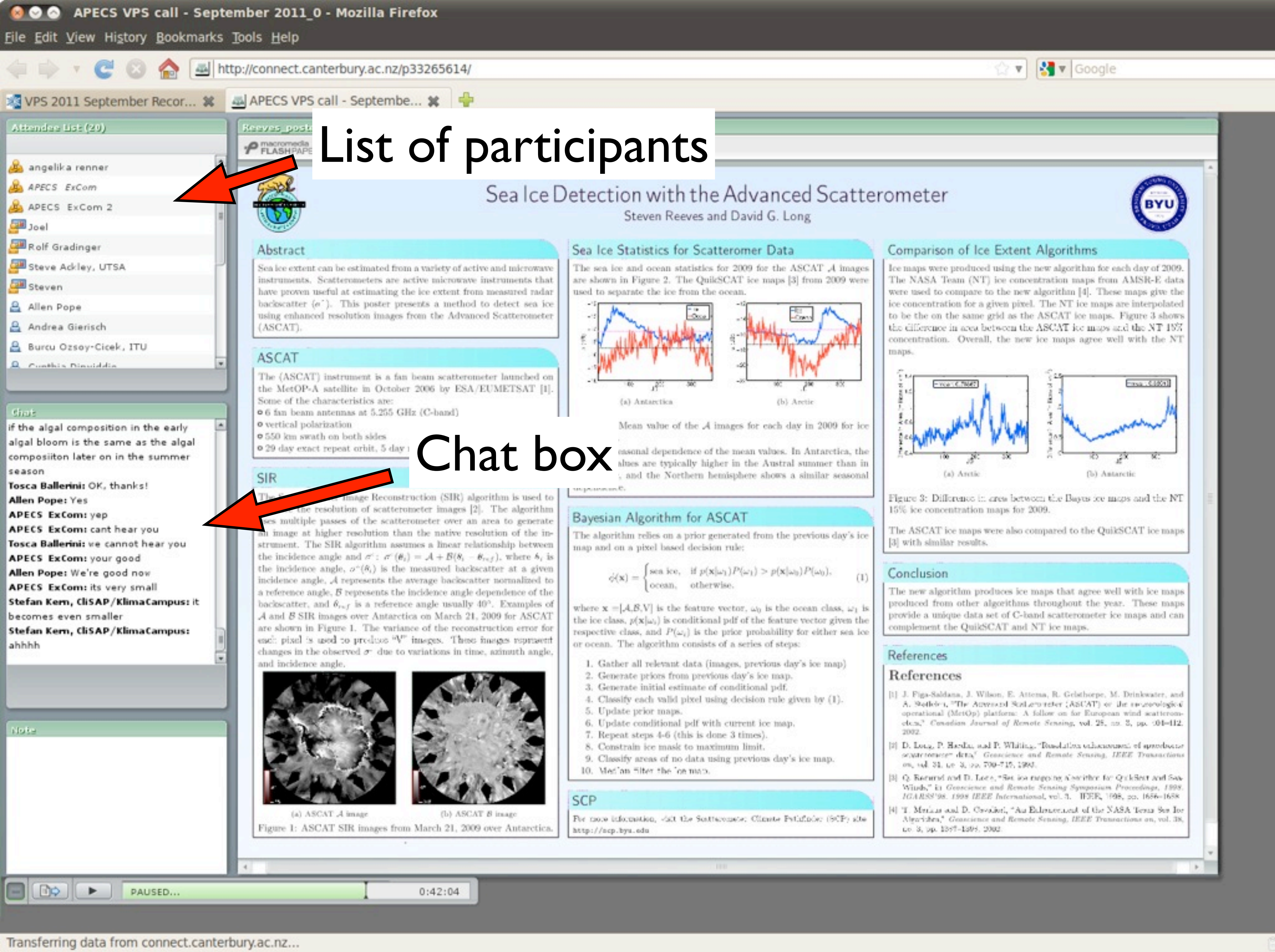

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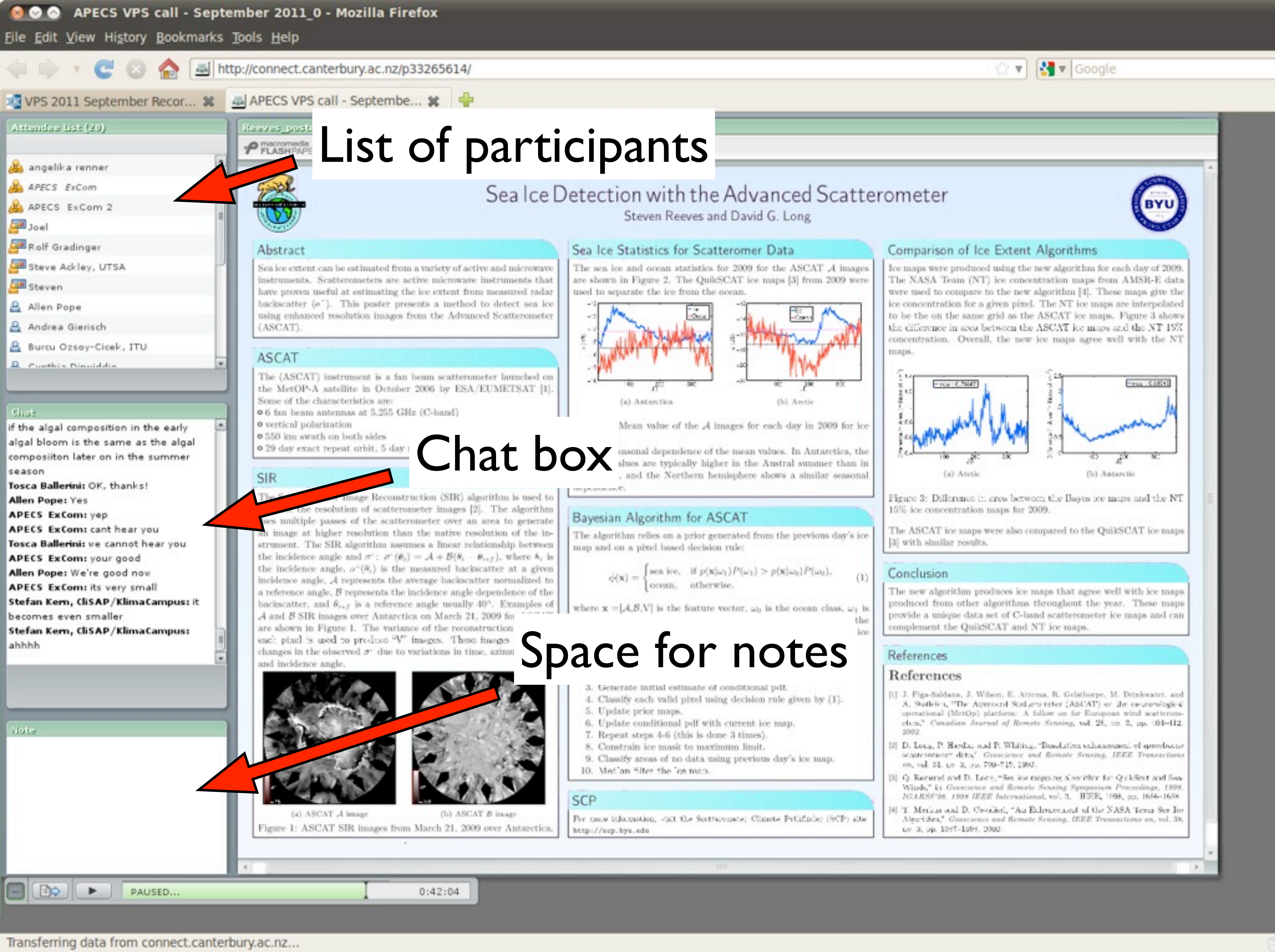

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If you have participated in the virtual poster session, we really need your feedback to improve this project. Please take 5 minutes to fill out a simple survey to see how what you thought of your experience.

Virtual Poster Session - Feedback form

We welcome and appreciate your contribution to the Virtual Poster Session (VPS).

Please use this opportunity to leave some feedback. Your comments, suggestions, thoughts, criticisms will help us to improve the VPS in the future. Your feedback will also form the basis for a thorough assessment of the VPS, its potential and drawbacks and will serve as a valued contribution to the reports we have produce for our sponsors, the Nordic Council of Ministers.

Thanking you,

Your APECS Virtual Poster Session Working Group
*Må fylles ut

When did you participate in the online Virtual Poster Session call? *
Please provide the date here.

Have you participated in an online virtual poster session call previous to the one you are evaluating now? *

- Yes
- No

On a scale from 1 to 5, how would you rate the quality of the content presented during the Virtual Poster Session? *

1 2 3 4 5

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Linking the VPS to other APECS projects:

Discipline of the Month

Next calls:

29 November, 17:00 GMT, Microbial Ecology

1st December, 16:00 GMT, Antarctica Day

In summary:

- new innovative way to present the newest research, accessible to everybody
- connects researchers across national, discipline and career level related boundaries
- trains communication skills of all participants

more info at http://www.apecs/is